

1. A method for partitioning a computer network end node, the method comprising:

virtualizing at least one router on the multi-function chip by means of a combination of hardware and software, wherein the virtual router performs control-flow processing for the virtual network devices, and wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing;

2. The method according to claim 1, wherein the virtual network devices are host channel adapters.

4. The method according to claim 1, further comprising assigning unique identifiers to the virtual network devices.

25 5. The method according to claim 1, further comprising
virtualizing a plurality of subnets on the multi-function
chip by means of software.

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6. The method according to claim 1, further comprising registering the virtual subnet with a physical subnet.

7. The method according to claim 6, wherein the physical subnet perceives the multi-function chip as only
5 a single router with multiple HCAs residing behind it.

8. The method according to claim 6, wherein nodes in the physical subnet communicate with the virtual subnet through the virtual router.

9. The method according to claim 1, wherein the
10 multi-function chip provides resource configuration and allocation interface that allow software, firmware and hardware state machines to set an operating policy for the virtual devices.

10. The method according to claim 1, wherein the
15 multi-function chip provides standard device functions directly to the virtual devices by means of physical queue pairs even though those devices logically reside behind a virtual router.

11. A computer program product in a computer readable
20 medium for use in a data processing system, for partitioning a computer network end node, the computer program product comprising:

instructions virtualizing a plurality of network devices on a single multi-function chip; and

25 instructions for virtualizing at least one router on the multi-function chip, wherein the virtual router performs control-flow processing for the virtual network

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T0250-50059660

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devices, and wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing;

5 wherein the virtual network devices and virtual router form a virtual subnet.

12. The computer program product according to claim 11, wherein the virtual network devices are host channel adapters.

10 13. The computer program product according to claim 11, wherein the virtual network devices are target channel adapters.

14. The computer program product according to claim 11, further comprising instructions for assigning unique identifiers to the virtual network devices.

15 15. The computer program product according to claim 1, further comprising instructions for virtualizing a plurality of subnets on the multi-function chip by means of software.

20 16. The computer program product according to claim 11, further comprising instructions for registering the virtual subnet with a physical subnet.

25 17. The computer program product according to claim 16, wherein the physical subnet perceives the multi-function chip as only a single router with multiple HCAs residing behind it.

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18. The computer program product according to claim 16, wherein nodes in the physical subnet communicate with the virtual subnet through the virtual router.

19. A system for partitioning a computer network end
5 node, the system comprising:
a first virtualizing component which virtualizes a plurality of network devices on a single multi-function chip; and
a second virtualizing component which virtualizes at
10 least one router on the multi-function chip, wherein the virtual router performs control-flow processing for the virtual network devices, and wherein the virtual router functions of destination lookup and packet forwarding are incurred only on control-flow processing;
15 wherein the virtual network devices and virtual router form a virtual subnet.

09965005-092704